

# Table of Contents

**ACRONYMS..... A-1**

## **CHAPTER 1: PURPOSE AND NEED**

1.1 Introduction ..... 1-1

1.2 Project Purpose and Need ..... 1-1

    1.2.1 Project Purpose..... 1-1

    1.2.2 Project Need..... 1-2

1.3 Establishing the Need for the Project..... 1-3

    1.3.1 State, Regional, and Local Plans ..... 1-4

    1.3.2 Population and Employment Growth ..... 1-5

    1.3.3 Traffic Operations ..... 1-6

    1.3.4 Modal Interrelationships..... 1-9

        1.3.4.1 Transit..... 1-9

        1.3.4.2 Bicyclists and Pedestrians..... 1-9

        1.3.4.3 General Aviation..... 1-11

        1.3.4.4 Other Railroad Activities ..... 1-11

    1.3.5 Traffic Safety ..... 1-12

    1.3.6 Roadway Deficiencies and Drainage Problems..... 1-12

1.4 Purpose and Need Objectives ..... 1-15

## **CHAPTER 2: ALTERNATIVES**

2.1 No Build Alternative ..... 2-1

2.2 Transportation System Management (TSM)..... 2-2

2.3 Build Alternative Development Process..... 2-2

2.4 Build Alternative..... 2-3

    2.4.1 Description..... 2-3

    2.4.2 Design Features ..... 2-4

    2.4.3 Traffic Operations ..... 2-5

    2.4.4 Comparison of 110-foot ROW to 94-foot ROW Option..... 2-6

    2.4.5 Preferred Alternative..... 2-6

2.5 Summary ..... 2-7

## **CHAPTER 3: AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES**

3.1 Land Use..... 3-1

3.1.1	Existing Land Use and Zoning.....	3-1
3.1.2	Future Land Use and Local Land Use Plans.....	3-2
3.1.3	No Build Alternative .....	3-4
3.1.4	Build Alternative.....	3-4
3.1.5	Mitigation of Land Use Impacts .....	3-6
3.2	Farmlands.....	3-6
3.3	Community Resources .....	3-6
3.3.1	Community Character and Cohesion .....	3-7
3.3.1.1	Community Demographics .....	3-8
3.3.1.2	Neighborhoods and Housing.....	3-9
3.3.1.3	Community Facilities .....	3-11
3.3.2	Impacts to Community Character and Cohesion.....	3-13
3.3.3	Environmental Justice Populations .....	3-14
3.3.4	Impacts to Environmental Justice Populations.....	3-16
3.3.5	Property Acquisition and Potential Relocation Impacts .....	3-18
3.3.6	Mitigation Measures for Community Impacts .....	3-20
3.4	Economics .....	3-21
3.4.1	Economic Setting.....	3-21
3.4.2	No Build Alternative .....	3-22
3.4.3	Build Alternative.....	3-22
3.4.4	Mitigation for Economic Impacts .....	3-24
3.5	Travel Patterns and Accessibility .....	3-24
3.6	Air Quality .....	3-25
3.6.1	Existing Air Quality Conditions .....	3-25
3.6.2	Air Quality Impacts .....	3-26
3.6.2.1	Carbon Monoxide .....	3-26
3.6.2.2	Particulate Matter.....	3-27
3.6.2.3	Mobile Source Air Toxics.....	3-27
3.6.2.4	Construction Impacts .....	3-33
3.6.3	Mitigation Measures for Air Quality.....	3-33
3.7	Noise .....	3-34
3.7.1	Existing Noise Environment .....	3-35
3.7.2	No Build Alternative .....	3-35
3.7.3	Build Alternative.....	3-35
3.7.4	Mitigation Measures for Traffic Noise.....	3-37
3.8	Water Resources.....	3-38

3.8.1	Surface Waters .....	3-39
3.8.2	Groundwater .....	3-42
3.8.3	Current Status of Surface Water Quality .....	3-43
3.8.4	Current Status of Groundwater Quality .....	3-44
3.8.5	Existing Water Rights .....	3-44
3.8.6	No Build Alternative .....	3-47
3.8.7	Build Alternative .....	3-47
3.8.8	Mitigation Measures for Water Resources .....	3-50
3.9	Floodplains.....	3-51
3.10	Wetlands.....	3-51
3.10.1	Wetland Areas .....	3-52
3.10.2	Wetland Functions and Values .....	3-53
3.10.3	No Build Alternative .....	3-54
3.10.4	Build Alternative.....	3-54
3.10.5	Only Practicable Alternative Finding .....	3-55
3.10.6	Mitigation Measures for Wetlands .....	3-56
3.11	Vegetation and Wildlife .....	3-57
3.11.1	Description of Vegetation and Wildlife .....	3-57
3.11.2	No Build Alternative .....	3-57
3.11.3	Build Alternative.....	3-58
3.11.4	Mitigation Measures for Vegetation and Wildlife .....	3-58
3.12	Threatened, Endangered, and Other Sensitive Species.....	3-58
3.12.1	Threatened, Endangered, and Other Sensitive Species.....	3-58
3.12.2	No Build and Build Alternative .....	3-59
3.12.3	Mitigation Measures for Threatened, Endangered, and Other Sensitive Species.....	3-59
3.13	Invasive Species.....	3-60
3.13.1	Invasive Species or Noxious Weeds.....	3-60
3.13.2	No Build and Build Alternative.....	3-60
3.13.3	Mitigation Measures for Invasive Species or Noxious Weeds.....	3-60
3.14	Paleontological, Archaeological, and Historic Resources .....	3-61
3.14.1	Paleontological, Archaeological, and Historic Resources .....	3-61
3.14.2	Determination of Eligibility.....	3-61
3.14.3	Finding of Effect .....	3-62
3.14.4	Consultation.....	3-63

3.14.5	Mitigation Measures for Cultural Resources .....	3-64
3.15	Hazardous Materials or Waste.....	3-64
3.15.1	Identified Hazardous Materials and Waste Facilities.....	3-64
3.15.2	No Build Alternative .....	3-66
3.15.3	Build Alternative.....	3-66
3.15.4	Other Potential to Encounter Hazardous Materials or Waste.....	3-73
3.15.5	Construction Related Impacts.....	3-74
3.15.6	Mitigation Measures for Hazardous Materials or Waste.....	3-75
3.16	Visual Quality.....	3-77
3.16.1	Visual Setting.....	3-77
3.16.2	No Build Alternative .....	3-77
3.16.3	Build Alternative.....	3-78
3.16.4	Mitigation Measures for Visual Quality.....	3-78
3.17	Secondary Impacts.....	3-78
3.18	Cumulative Effects.....	3-78
3.18.1	Scoping, Geographic, and Temporal Boundaries.....	3-79
3.18.2	Baseline Conditions and Other Actions.....	3-79
3.18.3	Potential Cumulative Impacts.....	3-80
3.18.3.1	Land Use.....	3-81
3.18.3.2	Social and Economic Resources .....	3-82
3.18.3.3	Wetlands.....	3-82
3.18.3.4	Cultural Resources.....	3-82

#### **CHAPTER 4: SECTION 4(f) EVALUATION**

4.1	Introduction .....	4-1
4.2	Description of Proposed Action.....	4-2
4.2.1	Purpose and Need.....	4-2
4.2.2	Alternatives.....	4-2
4.2.2.1	No Build Alternative .....	4-2
4.2.2.2	TSM Alternative .....	4-3
4.2.2.3	Build Alternative.....	4-3
4.2.2.4	Preferred Alternative.....	4-4
4.3	Section 4(f) Applicability .....	4-4
4.4	De Minimis Findings.....	4-9

4.5	Section 4(f) Evaluation of 772 West 500 South.....	4-12
4.5.1	Description of Section 4(f) Property .....	4-12
4.5.2	Use of Section 4(f) Property .....	4-13
4.5.3	Avoidance Alternatives for Section 4(f) Property .....	4-13
4.5.3.1	No Build Alternative .....	4-13
4.5.3.2	Widen 500 South to the South.....	4-13
4.5.3.3	Realign 500 South to the North.....	4-15
4.5.3.4	Realign 500 South to the South .....	4-16
4.5.3.5	Design Options.....	4-17
4.6	Measures to Minimize Harm to Section 4(f) Properties .....	4-18
4.7	Coordination.....	4-18
4.8	Section 4(f) Determination.....	4-18

## **CHAPTER 5: MITIGATION**

5.1	Land Use.....	5-1
5.2	Farmlands.....	5-1
5.3	Community Resources .....	5-1
5.4	Economics .....	5-2
5.5	Travel Patterns and Accessibility .....	5-2
5.6	Air Quality .....	5-3
5.7	Noise .....	5-3
5.8	Water Resources.....	5-4
5.9	Floodplains.....	5-4
5.10	Wetlands.....	5-5
5.11	Vegetation and Wildlife .....	5-5
5.12	Threatened, Endangered, and Other Sensitive Species.....	5-5
5.13	Invasive Species.....	5-5
5.14	Paleontological, Archaeological, and Historic Resources .....	5-6
5.15	Hazardous Materials or Waste.....	5-6
5.16	Visual Quality.....	5-9
5.17	Secondary Impacts.....	5-9
5.18	Cumulative Effects.....	5-9
5.19	Section 4(f).....	5-9

## **CHAPTER 6: COMMENTS AND COORDINATION**

6.1	Agency and Public Participation Meetings.....	6-1
6.1.1	Agency Scoping Meeting .....	6-1

6.1.2	Public Scoping Meeting - Open House #1 .....	6-2
6.1.3	Transportation & Infrastructure Stakeholder Workshop.....	6-2
6.1.4	Public Open House #2.....	6-4
6.1.5	Public Hearing.....	6-5
6.2	Other Outreach Methods .....	6-5
6.2.1	Stakeholder Interviews & Questionnaires.....	6-5
6.2.2	Neighborhood Meeting.....	6-6
6.2.3	Project Website .....	6-6
6.2.4	Media Coverage, News Articles, and Newsletters .....	6-6
6.2.5	Other Consultation .....	6-6
6.3	Summary of Comments Received To Date .....	6-9
6.4	Responses to Comments .....	6-9

**REFERENCES ..... R-1**

**APPENDICES**

*(All Appendices are included on the enclosed CD.)*

Appendix A Correspondence

Appendix B Traffic

Appendix C Existing Conditions

Appendix D Alternative Development

Appendix E Noise

**LIST OF TABLES**

Table 1.4-1:	Purpose and Need Objectives .....	1-16
Table 1.4-2:	Additional Project Objectives.....	1-17
Table 2.4-1:	LOS and Delay - PM Peak Hour .....	2-5
Table 2.4-2:	Travel Times - PM Peak Hour .....	2-5
Table 2.4-3:	Network Wide Delay - PM Peak Hour .....	2-6
Table 3.1-1:	Direct Land Use Conversions.....	3-4
Table 3.3-1:	Population Trends.....	3-8
Table 3.3-2:	School Age and Elderly Populations.....	3-8
Table 3.3-3:	Housing Characteristics .....	3-11
Table 3.3-4:	Racial Minority Populations.....	3-15
Table 3.3-5:	Low-Income Populations.....	3-16
Table 3.3-6:	Potential Displacements.....	3-19
Table 3.4-1:	Davis County Economic Trends .....	3-21

Table 3.4-2:	Davis County Tax Revenue Trends.....	3-22
Table 3.7-1:	Noise Abatement Approach Criteria .....	3-34
Table 3.7-2:	Total Number of Receptors that Approach, Equal, or Exceed the NAC.....	3-36
Table 3.7-3:	Predicted Exterior Sound Levels (dBA) for Receptors that Approach, Equal, or Exceed the NAC .....	3-36
Table 3.8-1:	Monthly Mean Streamflow Averages for Mill Creek .....	3-41
Table 3.8-2:	Public Drinking Water Supply.....	3-45
Table 3.8-3:	Wells within Two Miles of the Project .....	3-46
Table 3.8-4:	Surface Water Points of Diversion within 0.5 Miles of the Project .....	3-47
Table 3.8-5:	Drainage Areas along Project Corridor .....	3-48
Table 3.8-6:	Required Permits and Approvals Pertaining to Water Resources.....	3-50
Table 3.10-1:	Wetland Functions and Values Summary.....	3-54
Table 3.10-2:	Impacts to Wetland Areas.....	3-55
Table 3.14-1:	Potentially Affected NRHP-Eligible Properties.....	3-63
Table 3.15-1:	Hazardous Materials or Waste Sites of Potential Concern .....	3-66
Table 3.18-1:	Cumulative Impact Summary .....	3-81
Table 4.3-1:	Section 4(f) Applicability of Recreational Resources .....	4-5
Table 4.3-2:	Historic Properties that are on or Eligible for the NRHP.....	4-6
Table 4.4-1:	<i>De Minimis</i> Impacts.....	4-10
Table 6.1-1:	Agency and Public Participation Meetings.....	6-1
Table 6.1-2:	Issues and Solutions .....	6-3
Table 6.4-1:	Draft EA Comments and Responses .....	6-9
Table A-1:	Consultation with Agencies and Other Interested Parties.....	Appendix A

## LIST OF FIGURES

*(Figures are located at the end of each Chapter. Also see additional noise figures in Appendix E.)*

Figure 1-1:	Project Location and Traffic Influence Area
Figure 2-1:	Typical Sections – Existing / No Build Alternative
Figure 2-2:	Build Alternative Development and Screening
Figure 2-3:	Typical Sections – Build Alternative
Figure 2-4:	Possible Median Treatments – Build Alternative
Figure 2-5:	Roadway Design – Build Alternative 110' ROW (10 sheets)

Figure 2-6:	Roadway Design – Build Alternative 94’ ROW Option
Figure 3-1:	Zoning
Figure 3-2:	Future Land Use
Figure 3-3:	Demographic Study Area
Figure 3-4:	Neighborhood and Community Focal Points
Figure 3-5:	Racial and Ethnic Minority Census Block Populations
Figure 3-6:	Low Income Census Block Populations
Figure 3-7:	Receptors that Approach, Equal, or Exceed the NAC (2 sheets)
Figure 3-8:	Jordan and Lower Weber Watersheds (2 sheets)
Figure 3-9:	Surface Waters within the Project Survey Area (2 sheets)
Figure 3-10:	Water Rights and Protection Zones
Figure 3-11:	Floodplains (2 sheets)
Figure 3-12:	NRHP-Eligible Historic Properties (2 sheets)
Figure 3-13:	Hazardous Materials and Waste Facilities
Figure 3-14:	Visual Setting (2 sheets)
Figure 3-15:	1977 Aerial Photo
Figure 3-16:	2004 Aerial Photo
Figure 4-1:	Site 42Dv86 (D&RGW)
Figure 4-2:	Site 42Dv87 (UPPR)
Figure 4-3:	680 W 500 S, West Bountiful
Figure 4-4:	715 W 500 S, West Bountiful (2 sheets)
Figure 4-5:	915 W 500 S, West Bountiful
Figure 4-6:	1057 W 500 S, West Bountiful
Figure 4-7:	836 S 1800 W, Woods Cross
Figure 4-8:	946 S 1800 W, Woods Cross
Figure 4-9:	1650 S 1800 W, Woods Cross
Figure 4-10:	2018-2020 S 1800 W, Woods Cross
Figure 4-11:	2595 S 1800 W, Woods Cross
Figure 4-12:	772 W 500 S, West Bountiful (2 sheets)
Figure 4-13:	Avoidance Alignments